Panel 2: Beneficial Reuse Sites Updates

- *Moderator:* **Scott Bodensteiner**

  Client Leader, *Haley & Aldrich*

  BPC Dredging & Beneficial Reuse Committee Co-Chair

- **Steve Carroll**

  Ducks Unlimited

  Sites: Cullinan Ranch & Skaggs Island Restoration Projects

- **Jessica Davenport**

  California State Coastal Conservancy

  Site: Bel Marin Keys Restoration Project

- **Jim Levine**

  Montezuma Wetlands, LLC.

  Site: Montezuma Wetlands Restoration Project

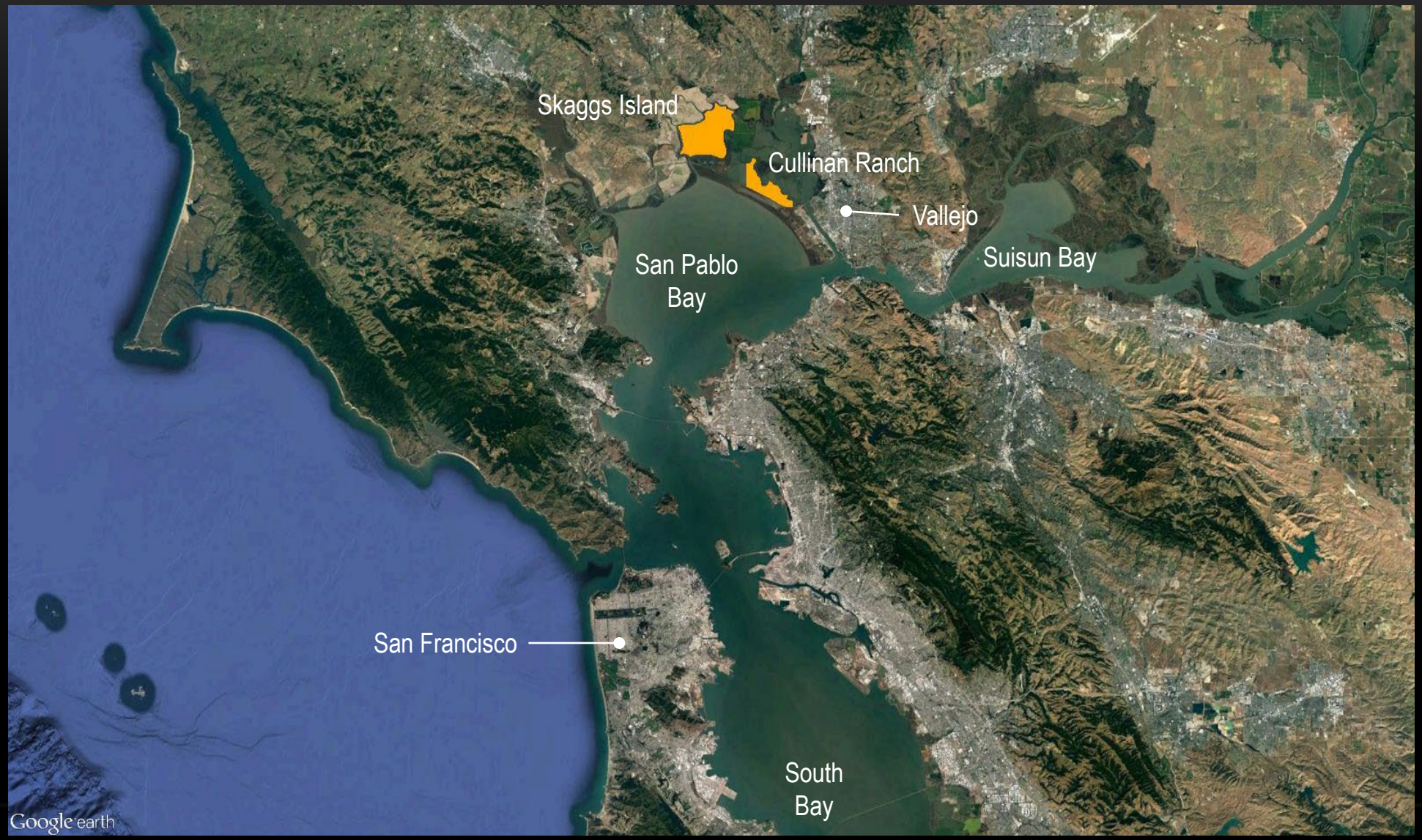
- **Barbara Salzman**

  Marin Audubon Society

  Site: Tiscornia Marsh Restoration Project

Ducks Unlimited conserves, manages, and restores wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people.

Cullinan Ranch & Skaggs Island are located in San Pablo Bay



Cullinan Ranch is a 1,500-acre tidal wetland restoration project

300 acres are available for beneficial use of dredge material

Water intake and decant structure

Water Conveyance

Cullinan has two authorized offloading locations

Water intake and decant structure

Water Conveyance

Authorized offloading locations

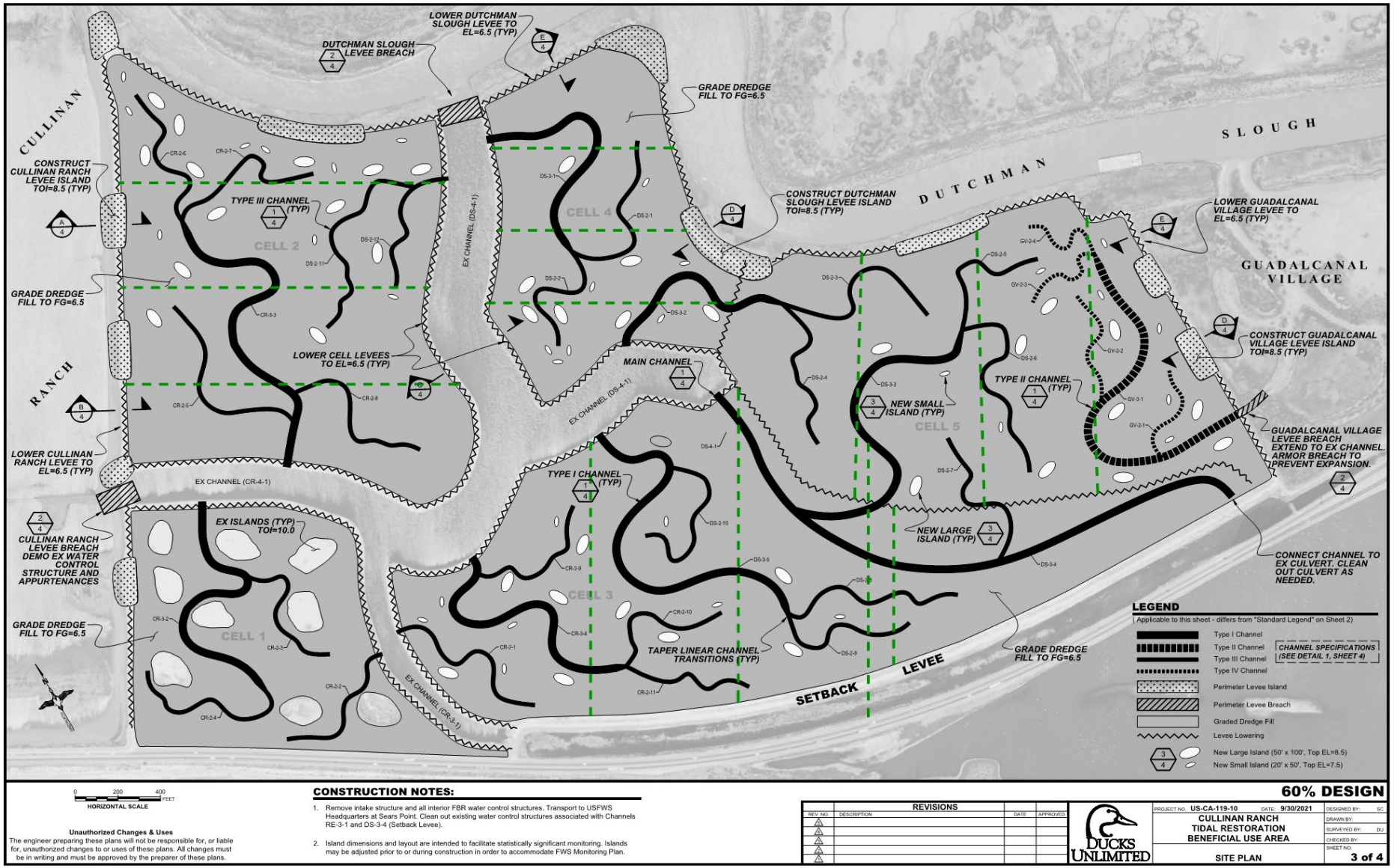
1.7 million cubic yards of dredged material has been imported

Water intake and decant structure

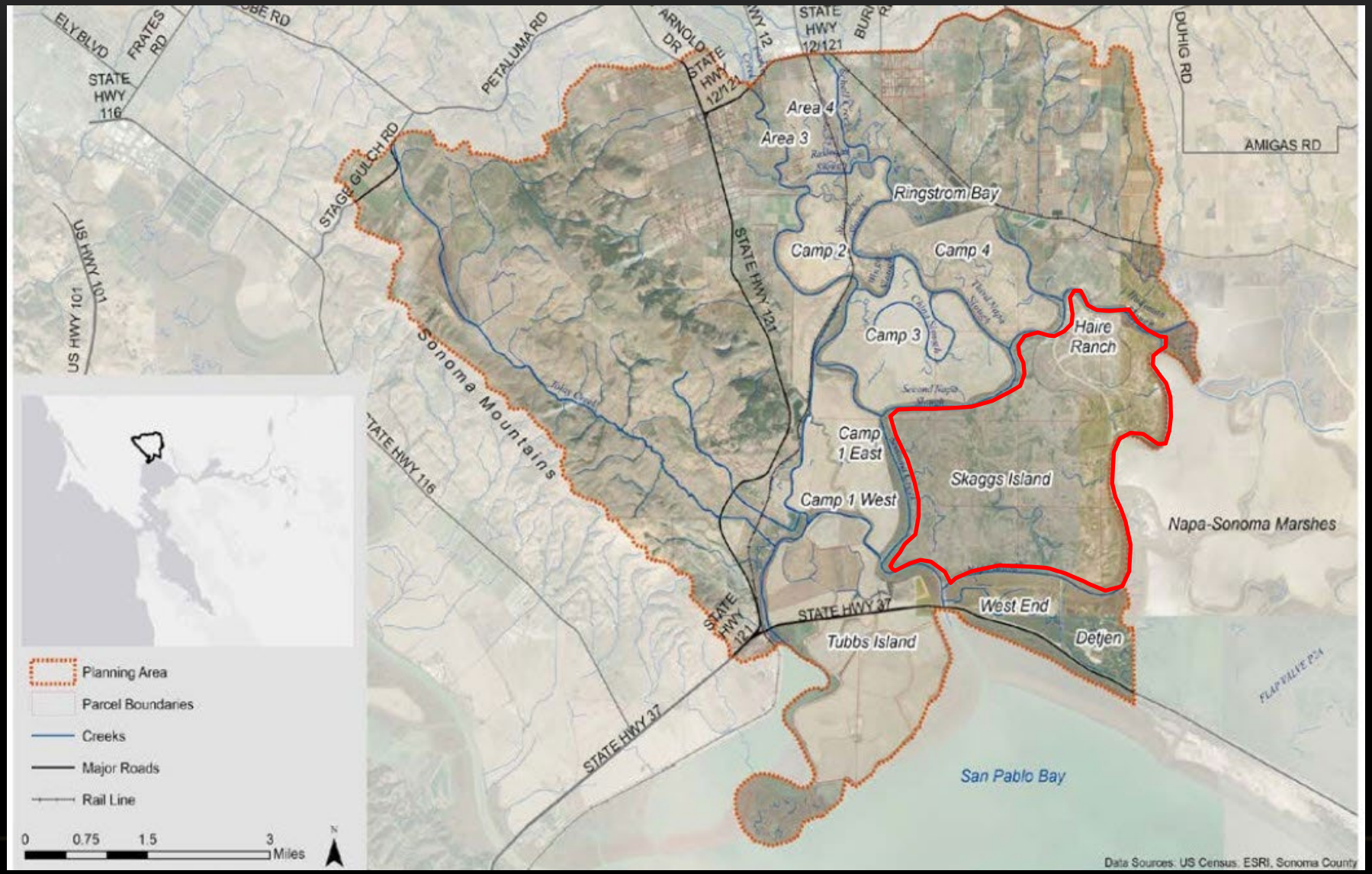
Water Conveyance

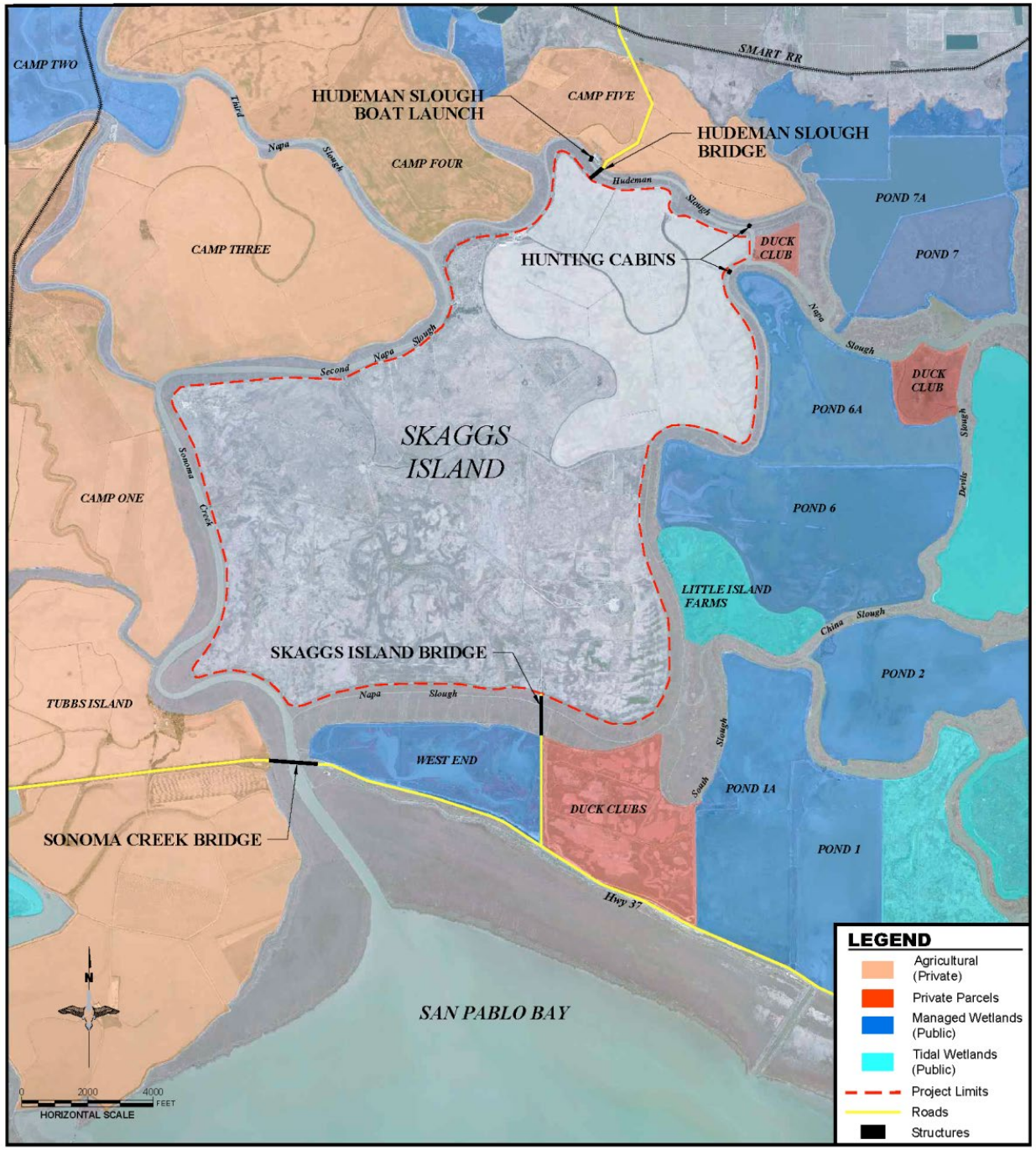
Authorized offloading locations

Restoration will be completed by lowering berms and excavating channels

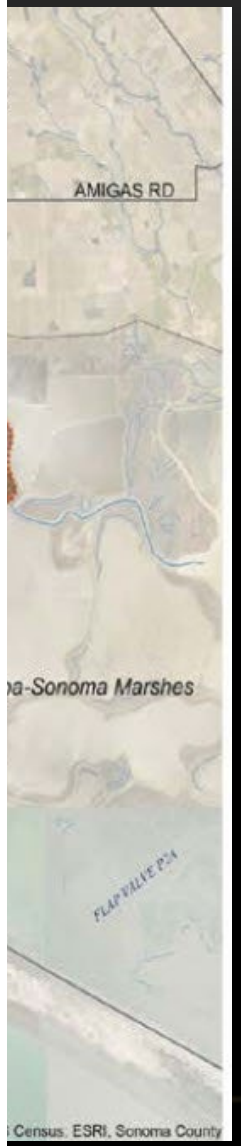


Skaggs Island is in its preliminary design phase

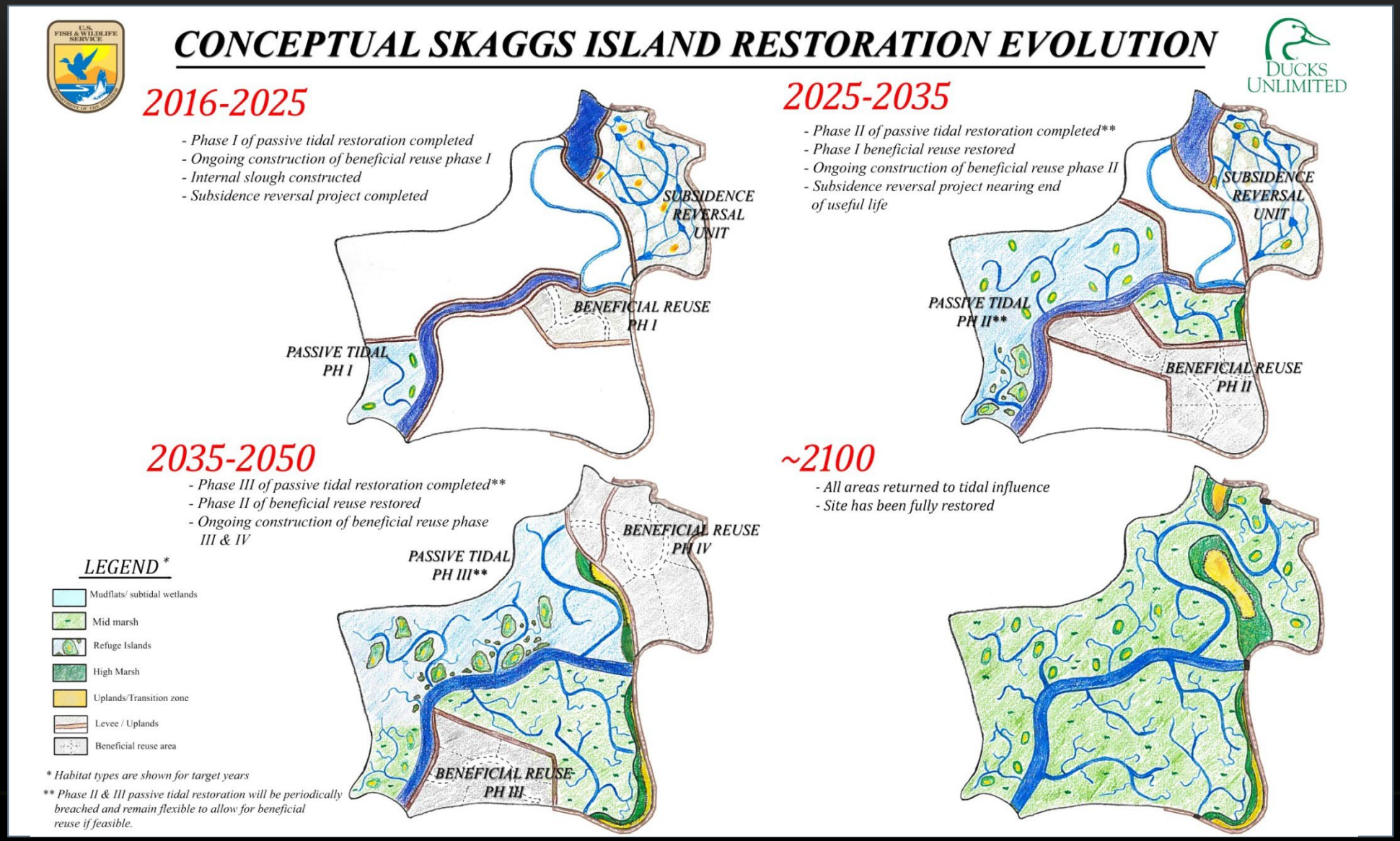



CAMP TWO
SMART RR
HUDEMAN SLOUGH BOAT LAUNCH
CAMP FIVE
HUDEMAN SLOUGH BRIDGE
Third Napa Slough
CAMP FOUR
Hudeman Slough
POND 7A
CAMP THREE
HUNTING CABINS
DUCK CLUB
POND 7
Napa Slough
Second Napa Slough
DUCK CLUB
POND 6A
SKAGGS ISLAND
Sonoma Creek
CAMP ONE
POND 6
Devils Slough
LITTLE ISLAND FARMS
China Slough
SKAGGS ISLAND BRIDGE
POND 2
Napa Slough
TUBBS ISLAND
WEST END
South Slough
POND 1A
DUCK CLUBS
SONOMA CREEK BRIDGE
POND 1
Hwy 37
SAN PABLO BAY
N
0 2000 4000 FEET
HORIZONTAL SCALE
LEGEND
Agricultural (Private)
Private Parcels
Managed Wetlands (Public)
Tidal Wetlands (Public)
Project Limits
Roads
Structures


ELY BLVD
FRATES RD
STATE HWY 116
US HWY 101
US HWY 101
Planning Area
Parcel Boundar
Creeks
Major Roads
Rail Line
0 0.75 1.5


AMIGAS RD
a-Sonoma Marshes
Census, ESRI, Sonoma County

Importing material to Skaggs is a long-term investment



CONC

2016-202

- Phase I of pass
- Ongoing const
- Internal sloug
- Subsidence rev

2035-20

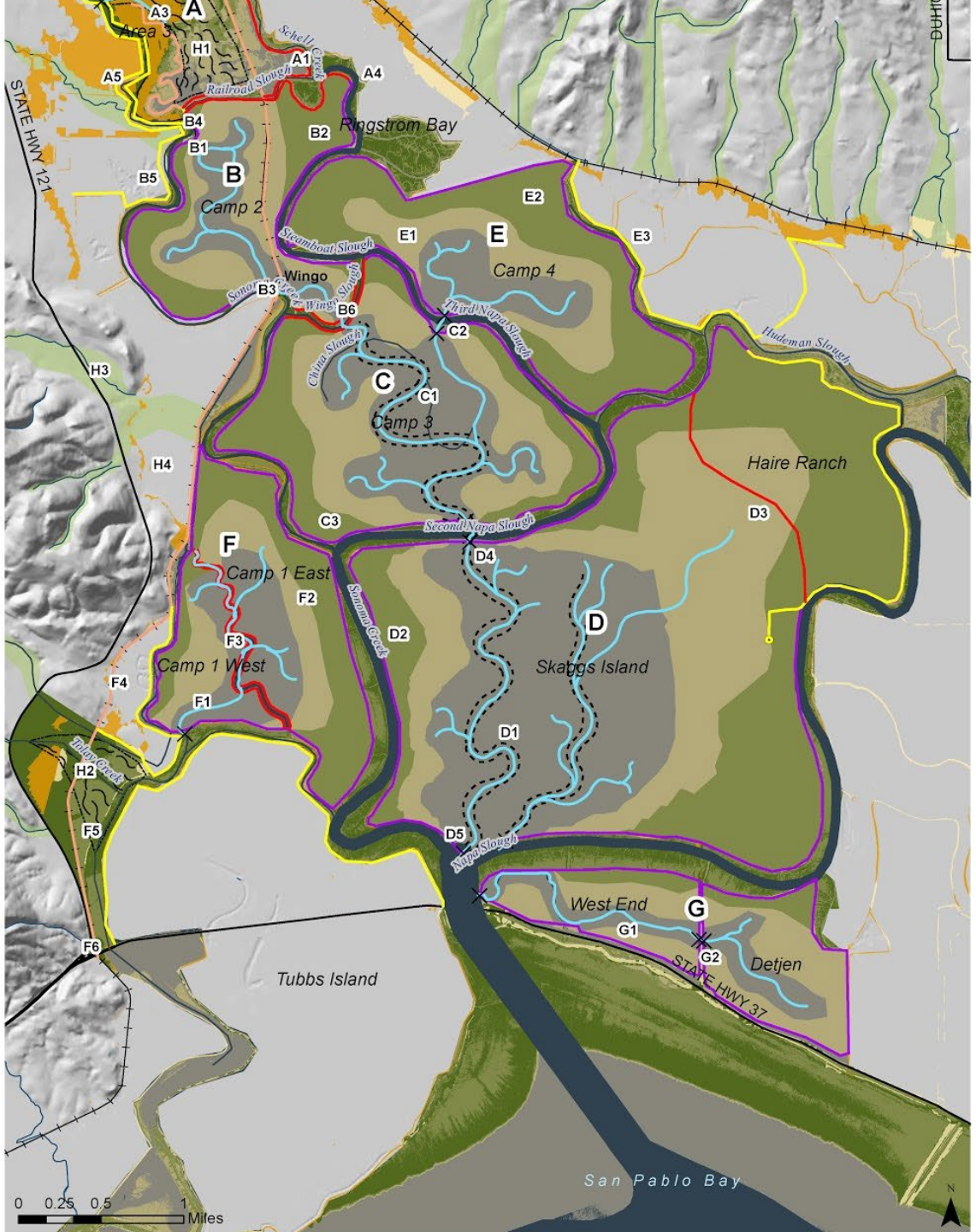
- Phase III of p
- Phase II of be
- Ongoing cons III & IV

LEGEND *

- Mudflats/ subtidal wetlands
- Mid marsh
- Refuge Islands
- High Marsh
- Uplands/Transition zone
- Levee / Uplands
- Beneficial reuse area

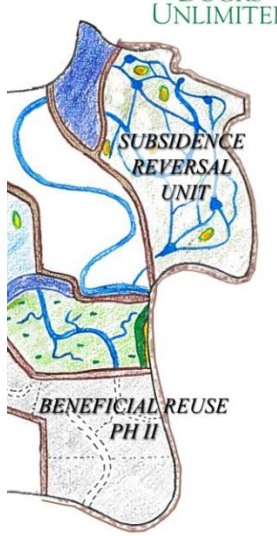
* Habitat types are shown for target years

** Phase II & III passive tidal restoration will be breached and remain flexible to allow for bene reuse if feasible.



TION

DUCKS UNLIMITED



Cullinan Ranch and Skaggs Island Contacts

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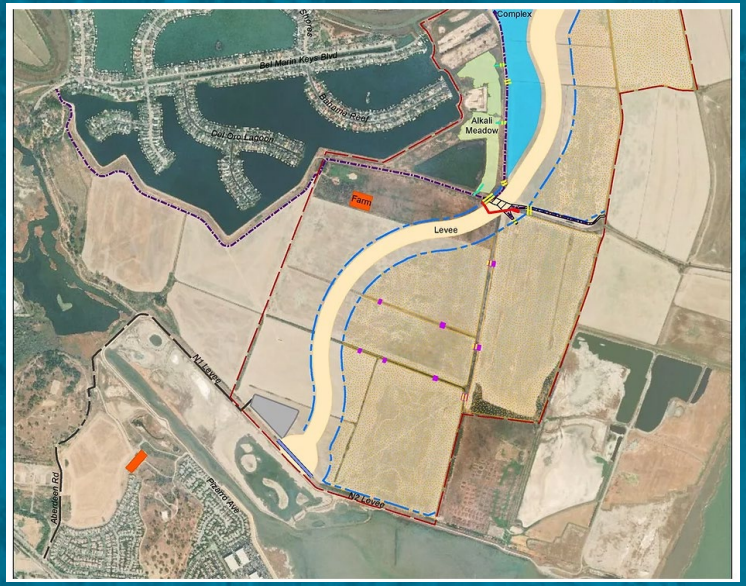
scarroll@ducks.org
(916) 717-3094

Hamilton/Bel Marin Keys Wetland Restoration Project

Bay Planning Coalition Dredging and Beneficial Reuse Workshop
October 18, 2022



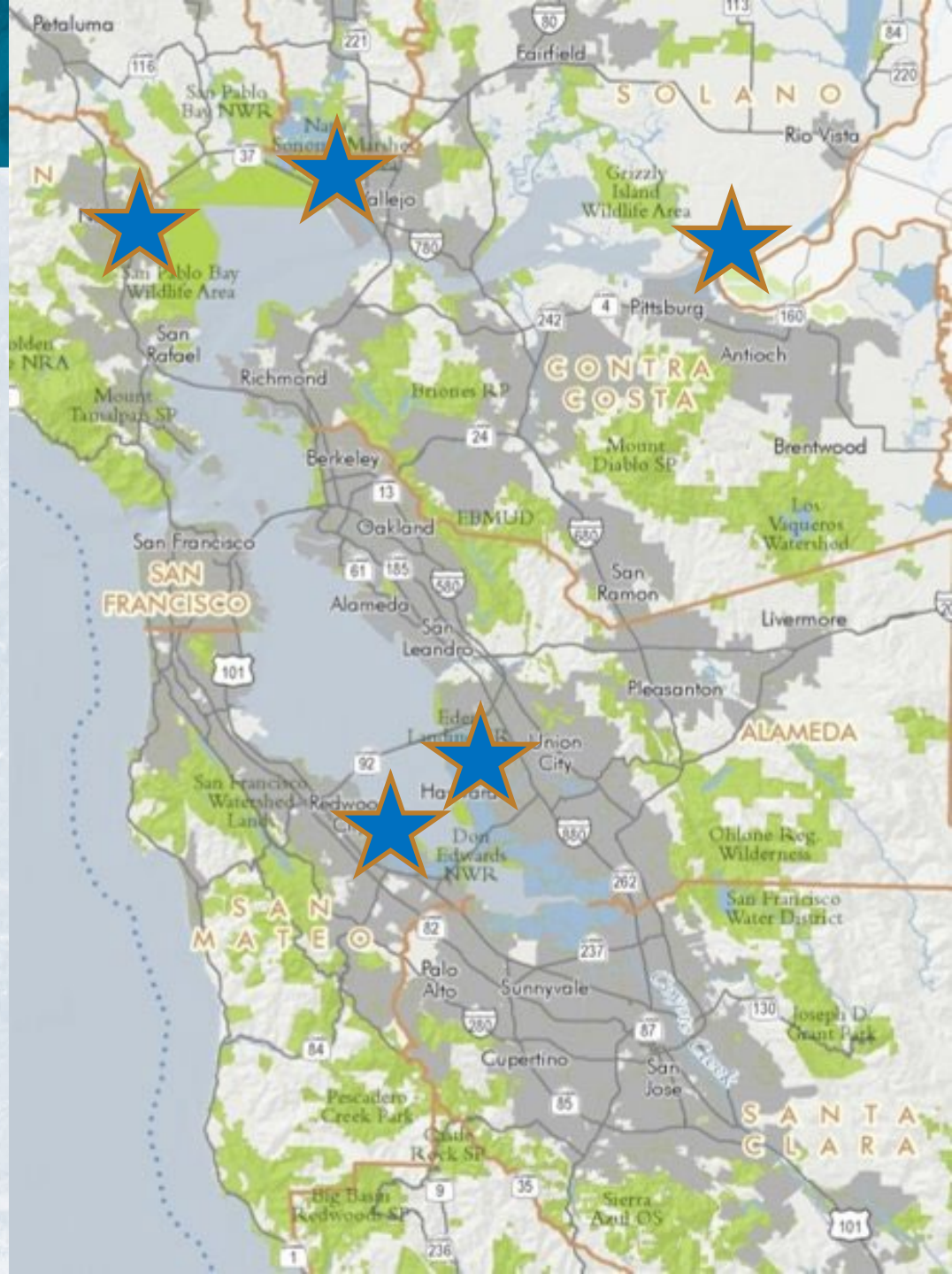
Jessica Davenport, Deputy Program Manager

Coastal Conservancy
STATE of CALIFORNIA

Coastal Conservancy

SCC and SFBRA Roles in Beneficial Reuse

- **Redwood City Harbor:** $5.5M from SCC to USACE for reuse of dredged sediment
- **Eden Landing:** SCC is Non-Federal Sponsor (NFS) for USACE San Francisco Bay Strategic Shallow-Water Placement Pilot Project
- **Cullinan:** NFS, USACE CAP 204 study ($12.3M)
- **Montezuma Wetlands:** Upcoming SFBRA staff recommendation of $2.1M
- **Hamilton/Bel Marin Keys:** NFS, landowner, 25/75 cost share with USACE for restoration



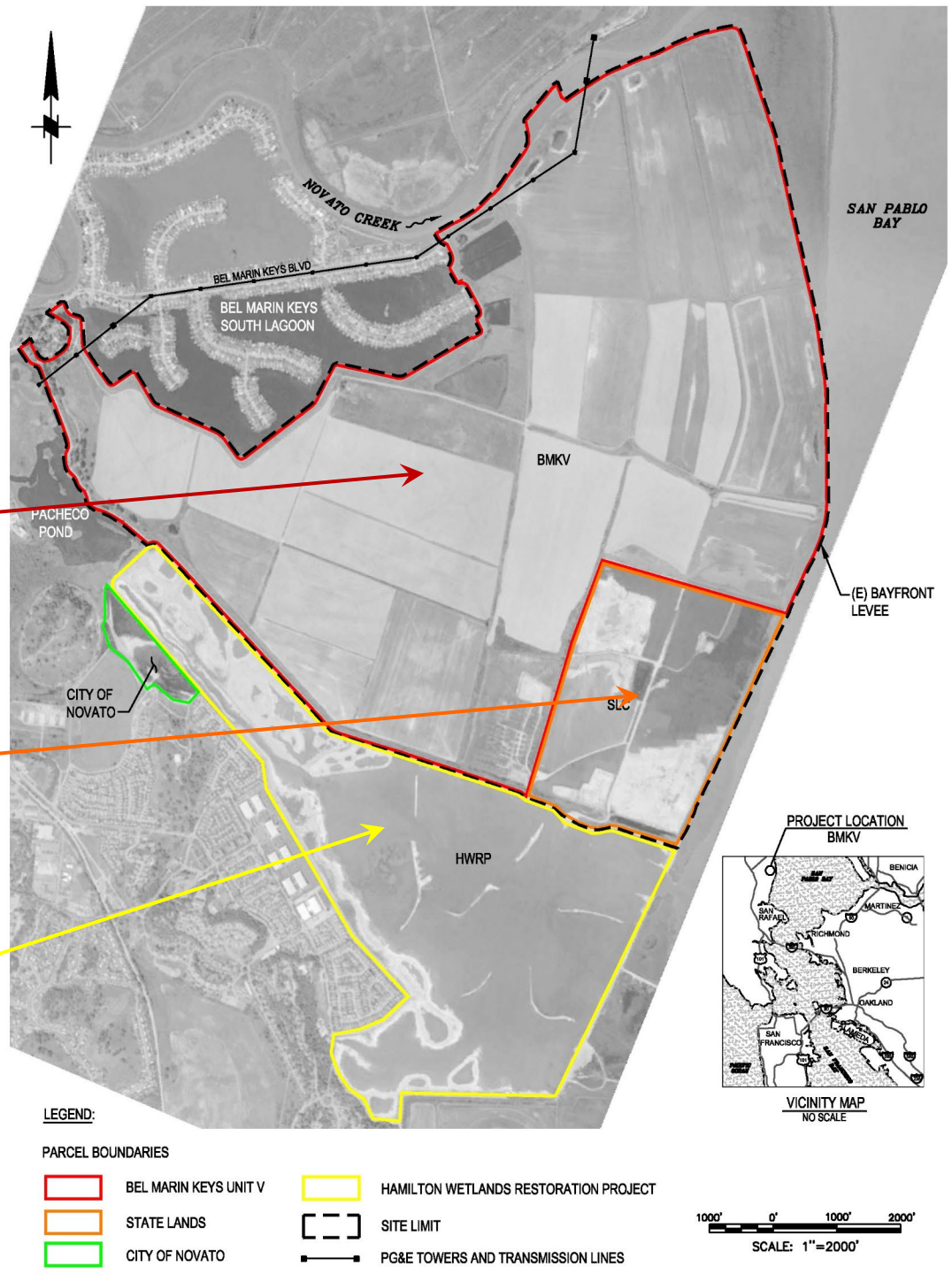
Hamilton/Bel Marin Keys Wetland Restoration Project

Consists of 3 parcels:

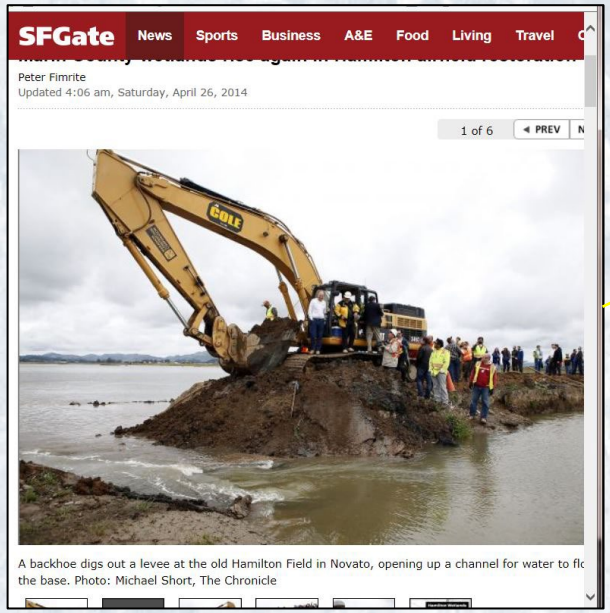
Bel Marin Keys Unit V
(~1,600 acres)

State Lands
Commission
(~300 acres)

Hamilton
Wetlands
(Restored
Airfield)
(~650 acres)

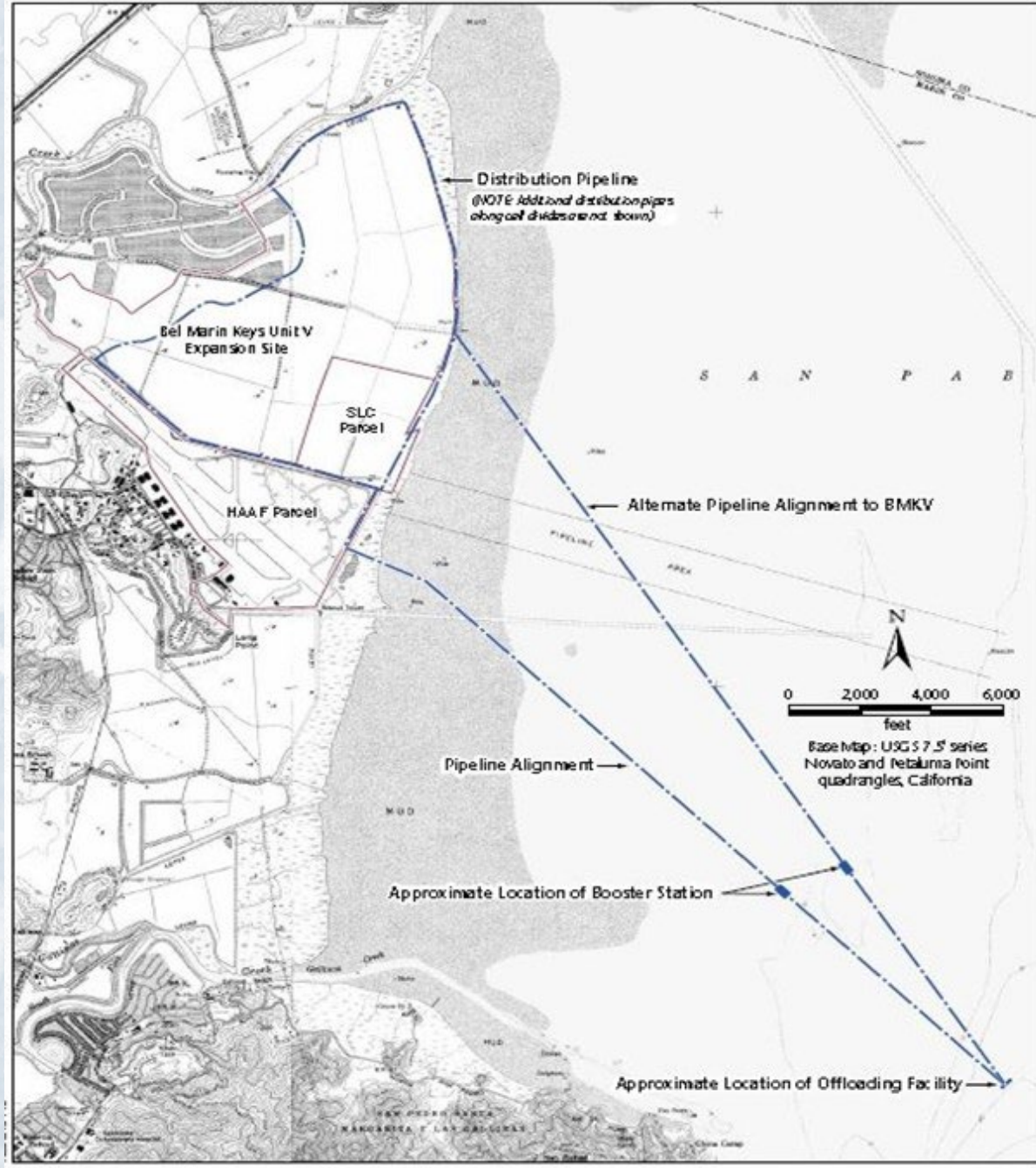


Restored Hamilton Wetlands



Previous Offloader

- 5 miles offshore - deep water
- Electrically driven - power line from BMKV
- Sediment slurried with Bay water pumped via submerged pipe



Jones & Stokes
nhc northwest hydraulic consultants

Figure 3-4
Approximate Location of Offloading Facility

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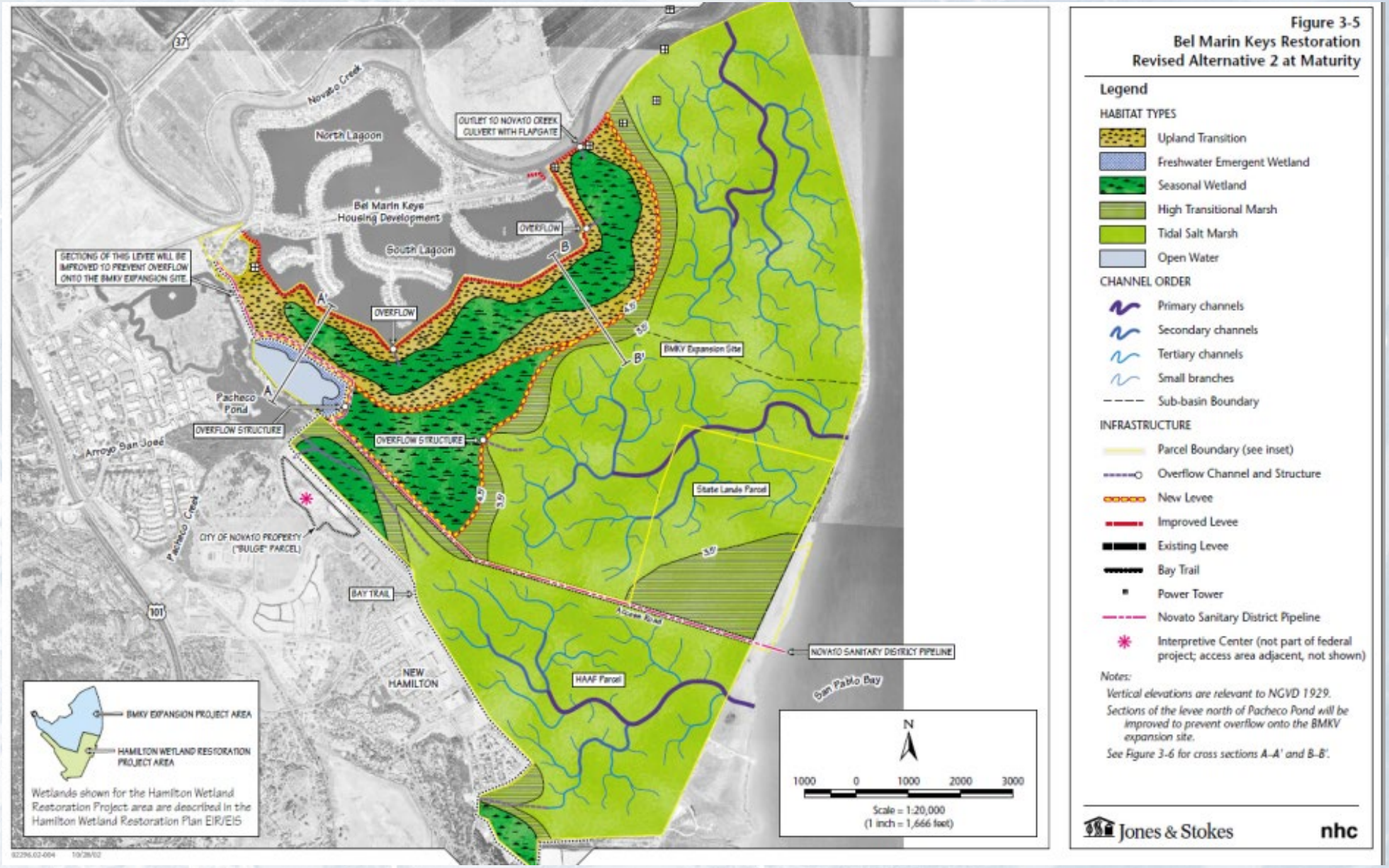
H/BMK Conceptual Design, Preferred Alternative, USACE, 2003



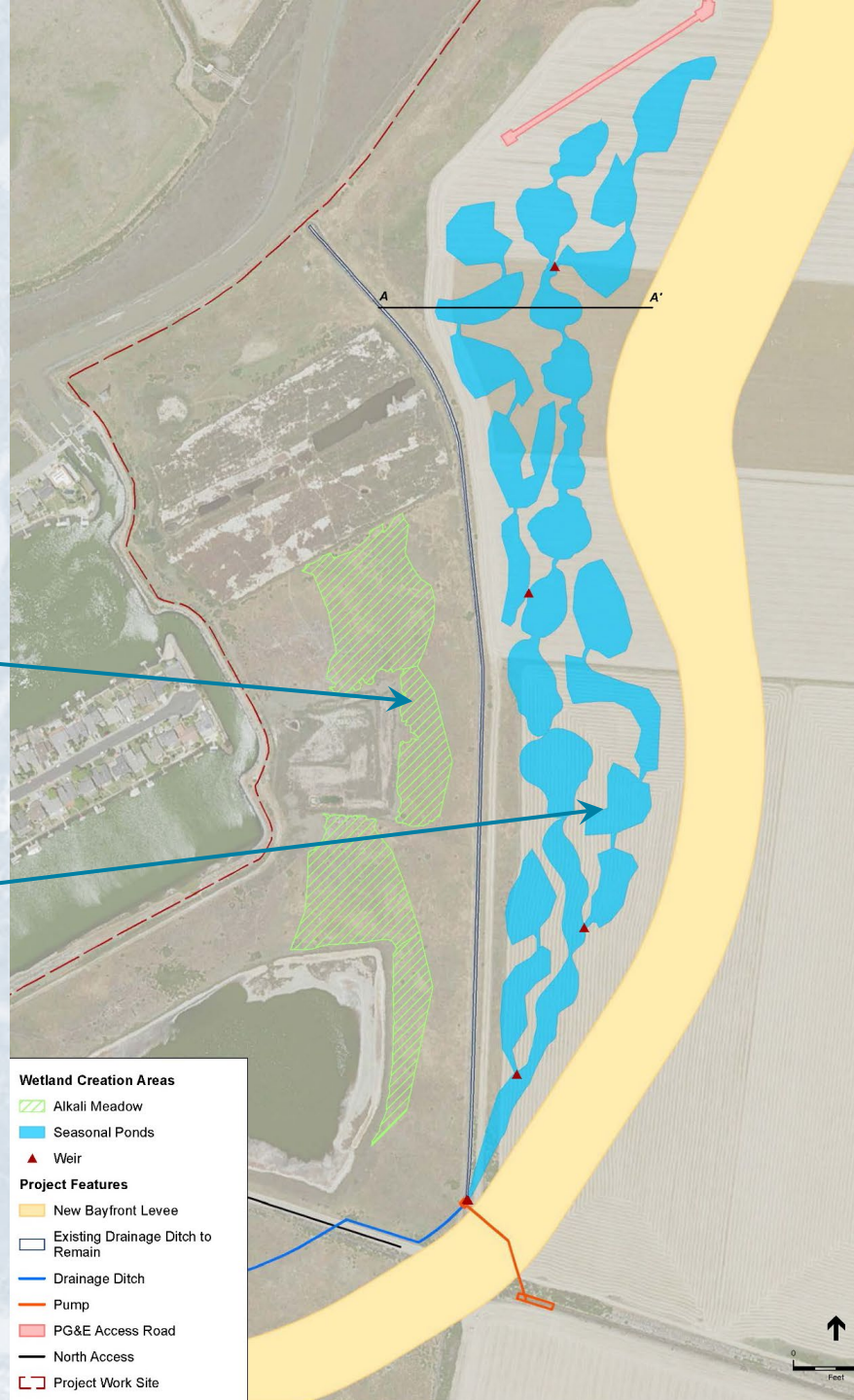
BMK Phase 1: Levee Construction and Season Wetland Restoration

Levee

- 11,800-ft long
- 1,400,000 cubic yards
- On-site borrow source

Habitat

- 10 ac Alkali Meadow Enhanced
- 26 ac Seasonal Wetlands Created



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BMK Phase 1 Completed October 2021

Drone footage of Bel Marin Keys Unit V new setback levee - Haley & Aldrich, July 2022

Tentative Schedule for BMK Phase 2

- **2023-2024: Update scope, evaluate preliminary design, initiate final design**
- **2024-2026: Complete plans & specs, obtain permits**
- **2027: Award construction contract**
- **2027 -2037 or 2044: Place dredged sediment**
- **Sometime between 2037 and 2044: Breach levee**

Capacity: 14 million cubic yards

Thank you

Coastal Conservancy
STATE *of* CALIFORNIA

Montezuma Wetlands Project

A Private Initiative to Solve Two Regional Problems

How to Safely Use Dredge Sediment

to Maximize Wetland Values in the Bay Area

2022 Update

Montezuma Wetlands Project

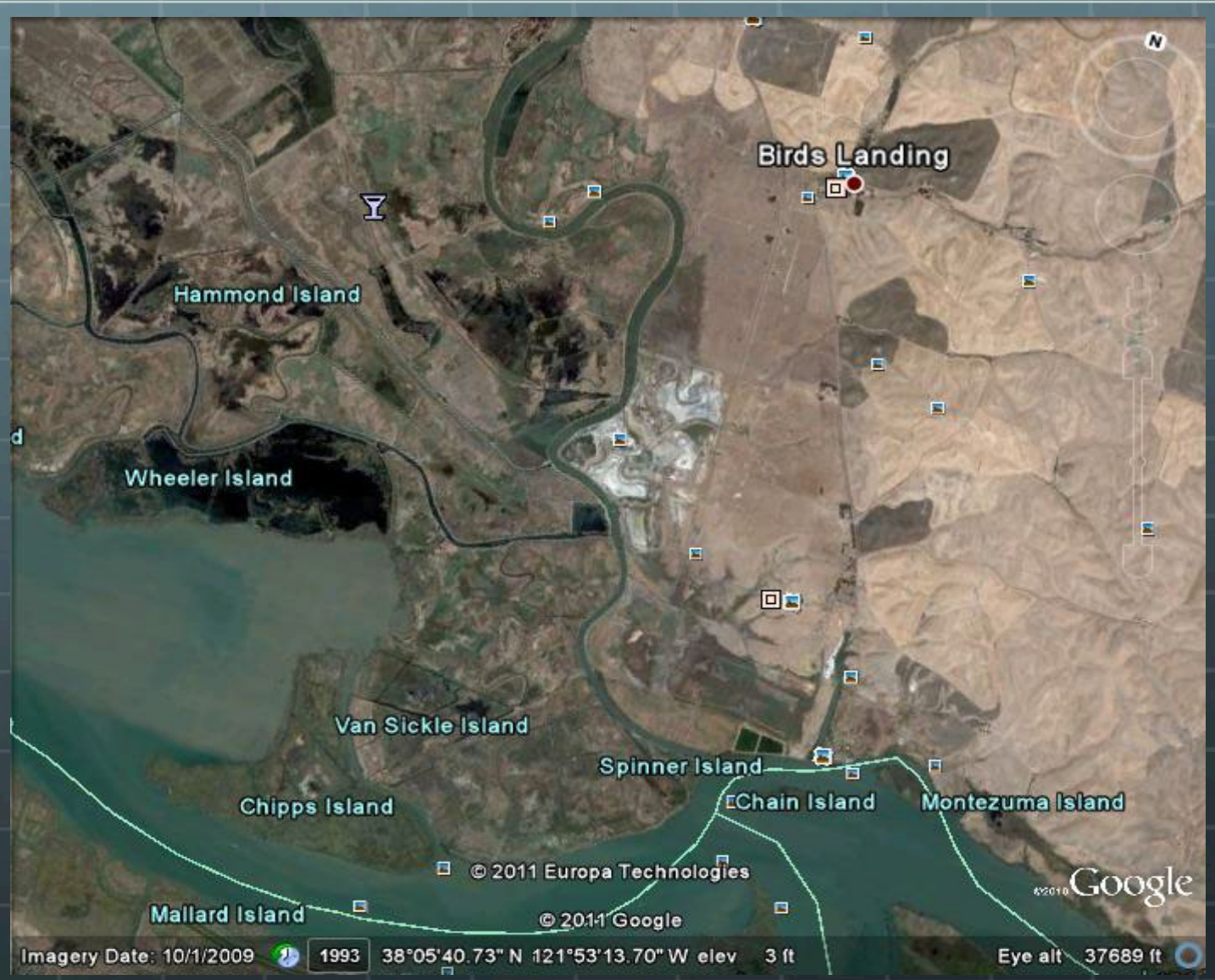
- First wave of multi-user beneficial reuse sites (2001) in SF Bay Area, with 20+ mcy of capacity
- Restores 1,600 acres of historical tidal marsh in null zone of SF Bay Estuary, and rebuilds the Port of Collinsville. Phase I restored to tides Oct 2020!
- Provides efficient alternative to ocean disposal of cover and non-cover sediment (some projects $7 differential…much less than wetland benefits.)
- Provides jobs and revenues to Solano County

Site Location

Montezuma Wetlands Project

- Went through exhaustive permitting from 1992 to 2001 with Solano County and the Army Corps of Engineers as lead agencies
- Since operations began in 2003, has successfully received approx. 10 mcy of sediment to-date, operating 24/7 in season, filling Phase I of the site
- Maintained regular water, sediment and biologic monitoring
- Has operated as reliable partners with project sponsors and regulatory agencies since receiving approvals in 2000-2001

Overview of Site Operations



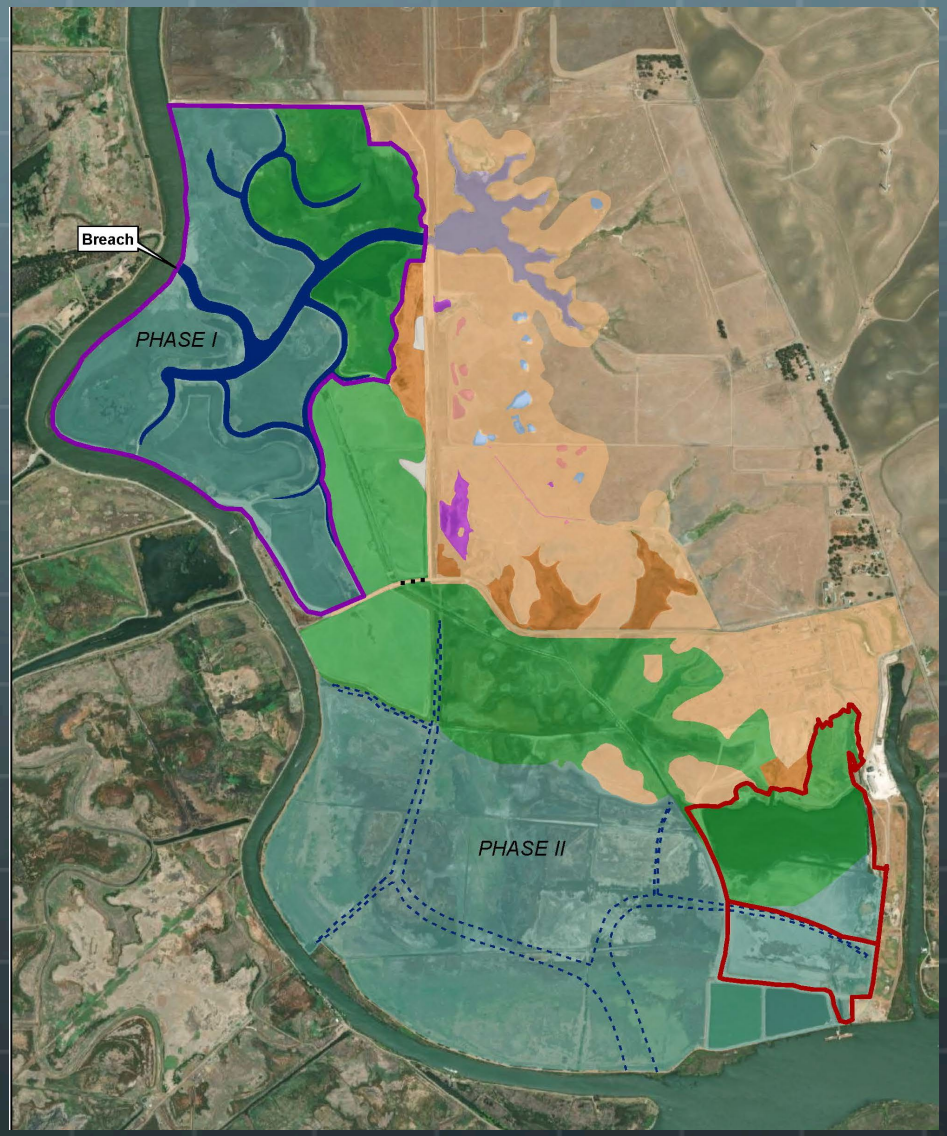
Sediment Offloading System

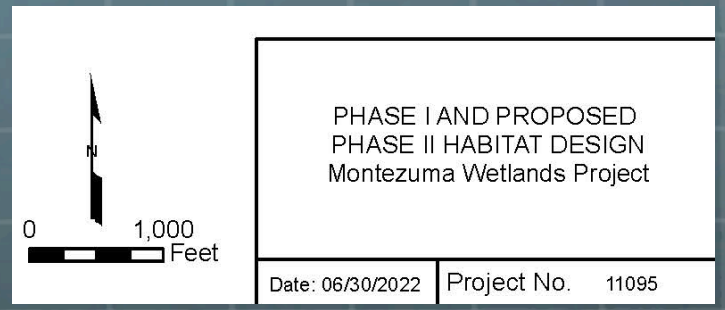
Montezuma Wetlands Project 2022 Update

- Post-Breach monitoring results show extraordinary recovery of tidal wetlands – vegetation, birds, SMHM, fish
- 2022 was good for beneficial reuse, but most of that went to Cullinan
- We accepted the federal Suisun project, oil refinery projects, Sacramento (pending) and others

Beginning of Breach 0800 October 27, 2020

Phase 1 Post-Breach Monitoring Results





Explanation:

- Phase I Breached Area
- Cell 14 Boundary
- Clank Hollow
- Intertidal Channels
- Low Intertidal Marsh
- High Intertidal Marsh
- Created Vernal Pools
- Preserved Vernal Pools
- Avoided Vernal Pools
- Upland Transition and Buffer
- Seasonally Wet Depressions
- Least Tern Areas
- Anticipated Future Tidal Channels
- SMHM Crossings Under Road (not to scale)

Phase 1 Post-Breach Monitoring Results

Tidal Channel Formation	Tidal channel formation as expected, no incision into foundation sediments
Water Quality	All water quality parameters as expected, waste discharge requirements (WDRs) met
Vegetation	Marsh vegetation establishing, approximately 30% vegetated within one year of breach
Special-status Species	**Salt marsh harvest mouse and western pond turtle** detected in Phase 1 Nesting and fledging of **CA least tern and western snowy plovers** in Phase 1 Waterfowl and shorebird use in high abundance immediately following breach **Fish** detected within breached site immediately after breach Chl a and zooplankton abundance patterns extend further into summer than managed wetlands

Vegetation

Year 1 Vegetation Mapping (Drone Imagery from July 2021)

132 acres (~30% of breached cells) vegetated within 1 year

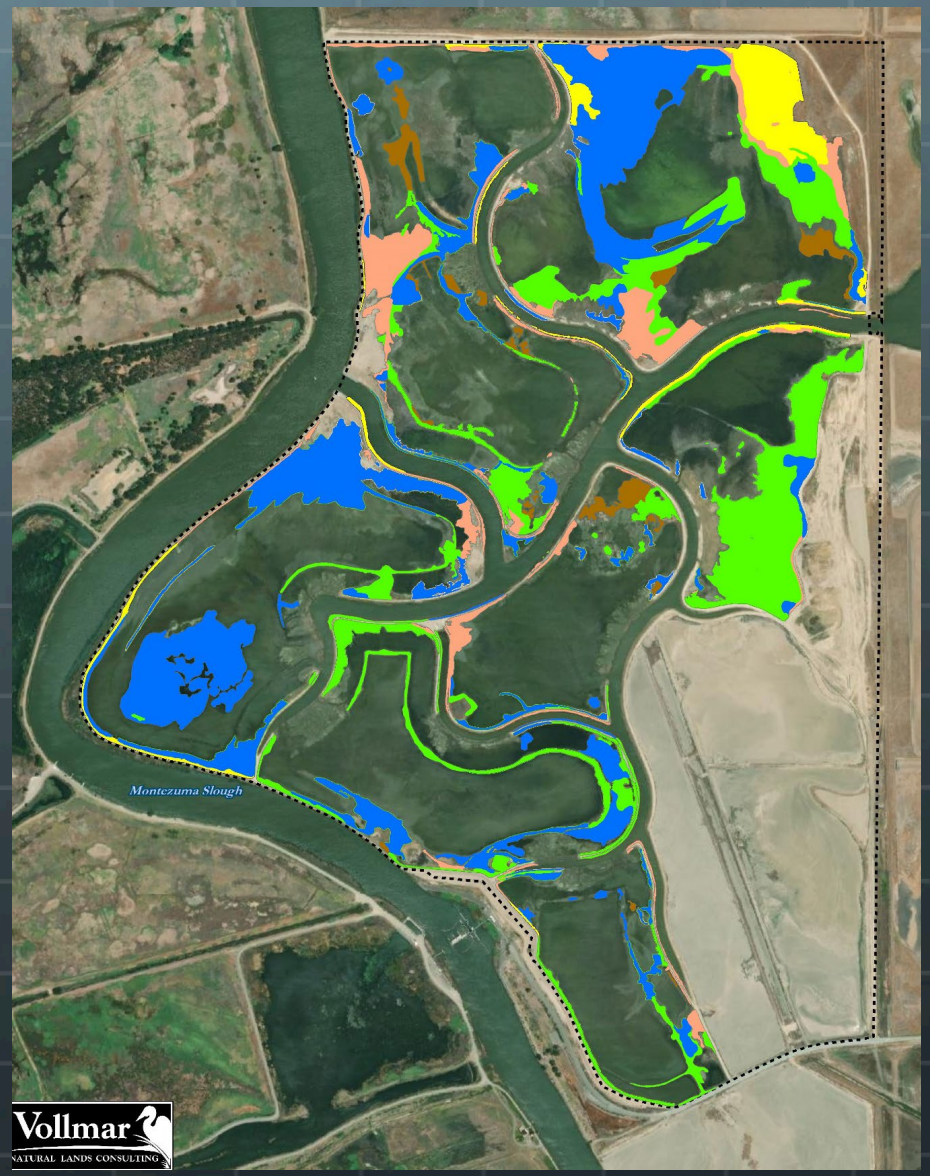
Vegetation mix of native and non-native, but mostly common marsh species

Legend

Phase I Boundary

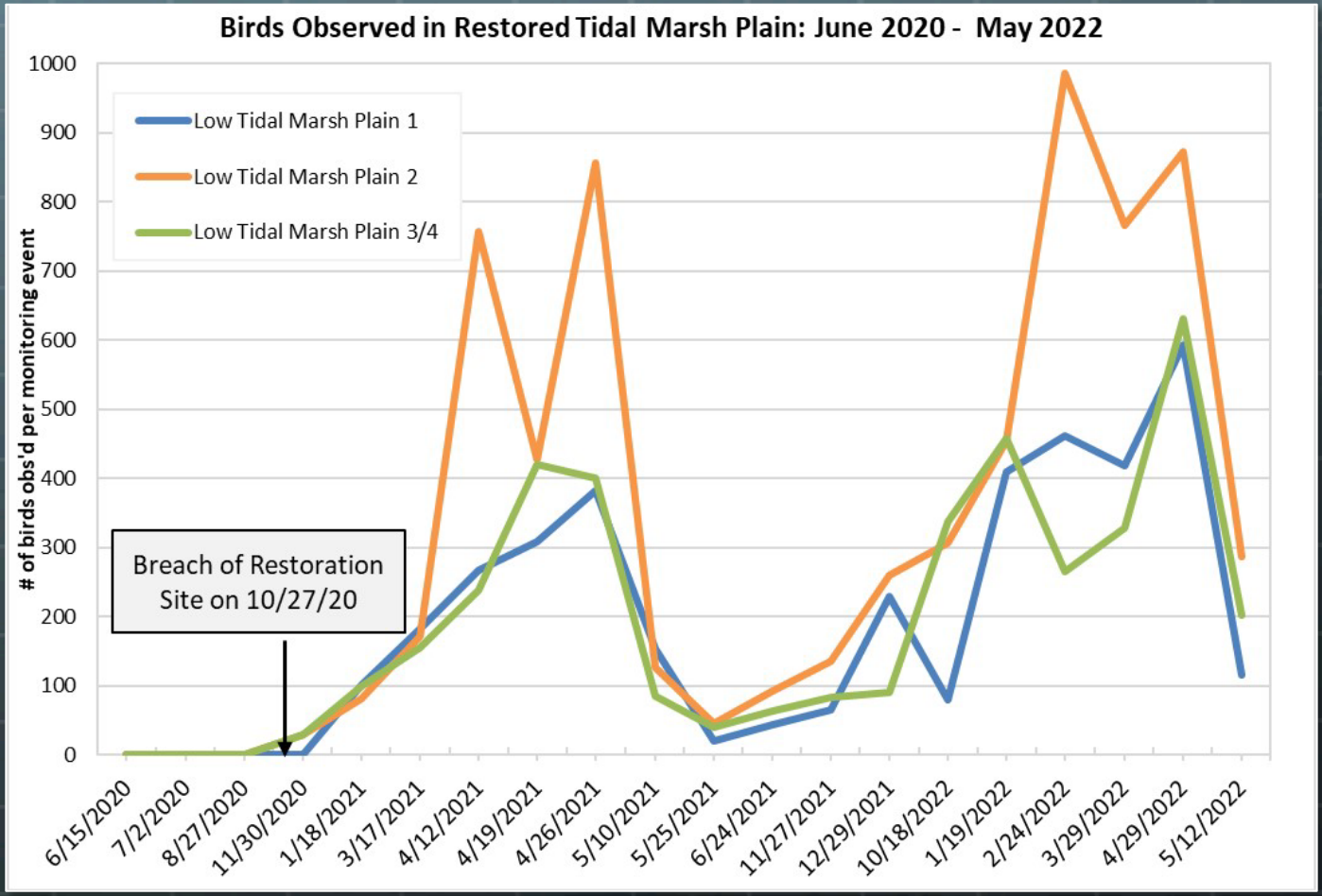
Vegetation Groups

- Temperate Pacific Tidal Salt and Brackish Meadow (58.15 ac.)
- Western North American Disturbed Alkaline Marsh and Meadow (41.36 ac.)
- Russian Thistle (16.49 ac.)
- Mediterranean California Naturalized Annual and Perennial Grassland (10.68 ac.)
- Arid West Freshwater Emergent Marsh (5.30 ac.)

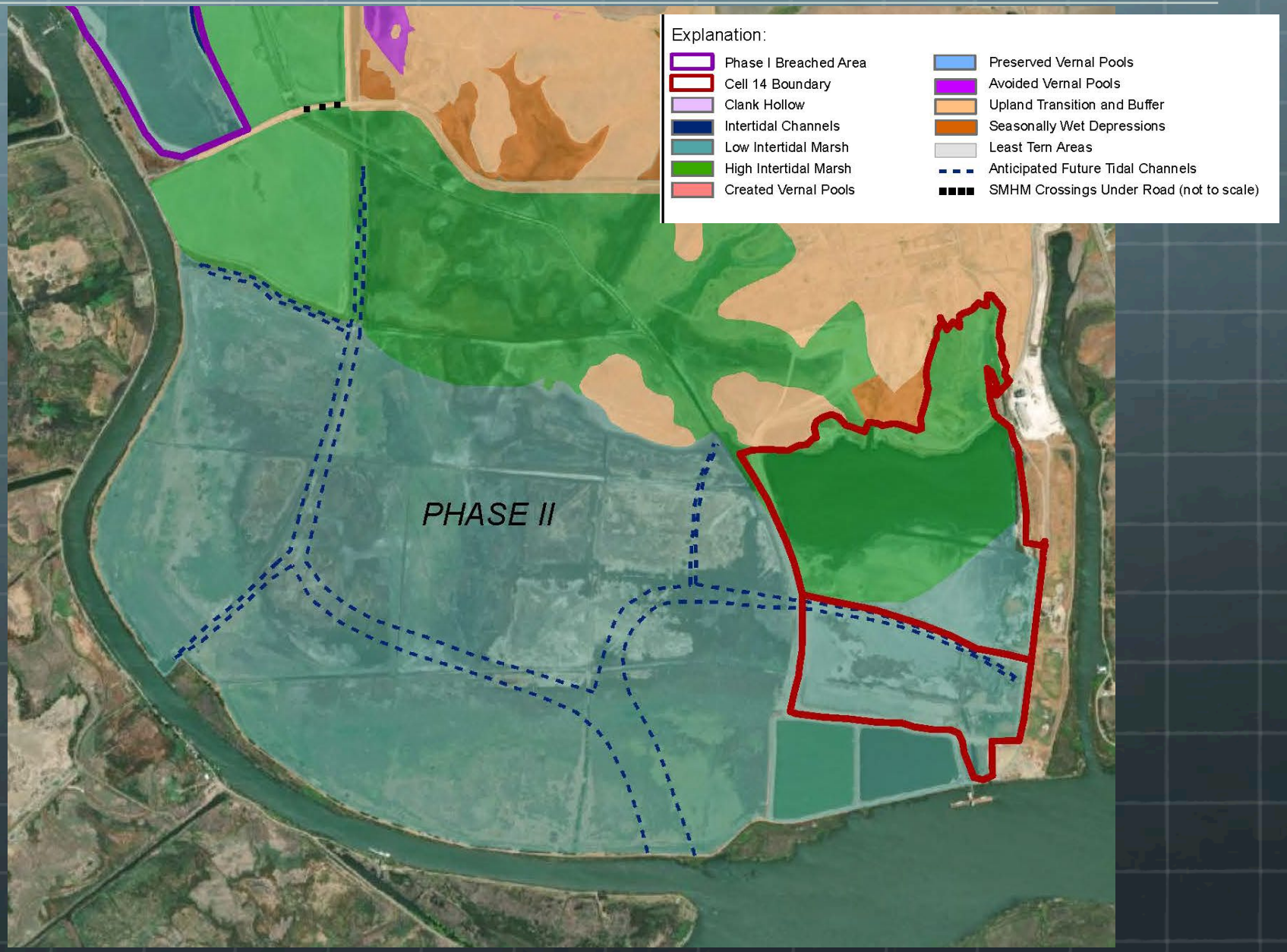


Shorebird Early Monitoring Results

Increases in abundance of shorebirds were observed within one month of breach (late October 2020 – shown with arrow), as compared to pre-breach conditions.



Montezuma Wetlands Project



What does the future hold?

- If Montezuma can compete against federal and state subsidized sites, critical role in recovery of endangered fish species (Montezuma scored as the highest reuse site in the region for potential ecological benefits due to its location in the Estuary)
- 13 million yards and 20 more years operating life
- Possible use of Montezuma offloading system on other Bay projects

Ranking of Beneficial Reuse Sites for Ecological Values

Table 11: Secondary Screening Results – Normalized Scores and Rank

Color Code:	Existing	New	Rehandling

Geographic Area	Alternative	Total Environmental Score	Normalized	Overall Rank
Suisun Bay	Montezuma Wetlands Project	92	1.917	1
Central SF Bay	Corte Madera Mudflats Restoration	68	1.700	2
Lower Sf Bay	South Bay Salt Ponds - Phase 2	79	1.646	3
San Pablo Bay	Sears Point Restoration Project	76	1.583	4
Lower Sf Bay	Eastern Shore Mudflats Restoration	61	1.525	5
San Pablo Bay	Mudflat Restoration East of Hamilton WRP	60	1.500	6
Central SF Bay	Hunters Point (Former Naval Shipyard)	76	1.490	7
Suisun Bay	Roe Island Mudflats Restoration	59	1.475	8
Central SF Bay	Bay Farm Borrow Pit - Subtidal Restoration	51	1.417	9
San Pablo Bay	Cullinan Ranch	66	1.375	10
Lower Sf Bay	Moffett Field Wetlands	61	1.271	11
San Pablo Bay	Bel Marin Keys Unit V	61	1.271	11
San Pablo Bay	Novato Creek Watershed Program	61	1.271	11
Lower Sf Bay	Bair Island Restoration Project	61	1.271	11
Suisun Bay	Dutch Slough Restoration Project	56	1.167	15
Lower Sf Bay	Pond A18 Santa Clara/San Jose WPCP	56	1.167	15
Central SF Bay	Ocean Beach Nourishment (SF-17)	42	1.167	15
San Pablo Bay	Breuner Marsh Restoration	54	1.149	18
Central SF Bay	Capping - Subaqueous	36	1.091	19
San Pablo Bay	Skaggs Island	34	1.063	20
San Pablo Bay	Carneros River Ranch	32	1.032	21

Incredible Project Team

- Peter Hornick, Zebra Fund
- Doug Lipton, PhD. Chief Scientific Officer
- Roger Leventhal, PE and Jim Levine PE, Chief Engineers
- Cassie Pinnell, Chief Biologist and Dep. General Mgr Montezuma Wetlands, LLC
- Sharon Hall, Chief Financial Officer
- TRT led by Jeremy Lowe of SFEI
- Past staff Rachel Bonnefil and Stu Siegel
- Solano County staff and leadership, Port of Oakland, Bill Bagley, Bay Area dredging contractors (Dutra, Manson, Lind, Great Lakes), Ferrari Bros (Ferma), and renowned author and visionary Marc Reisner

Contact Information

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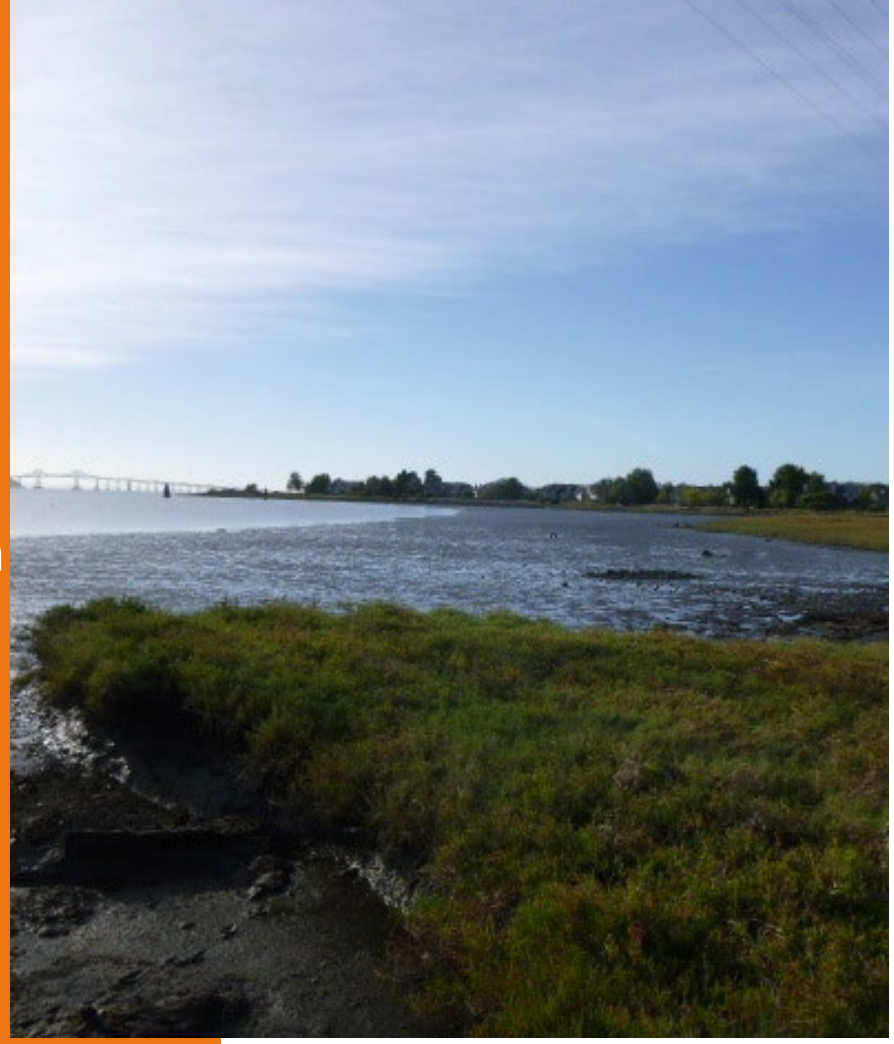
www.montezumawetlands.com

Tiscornia Marsh Sea Level Rise Adaptation and Restoration Project

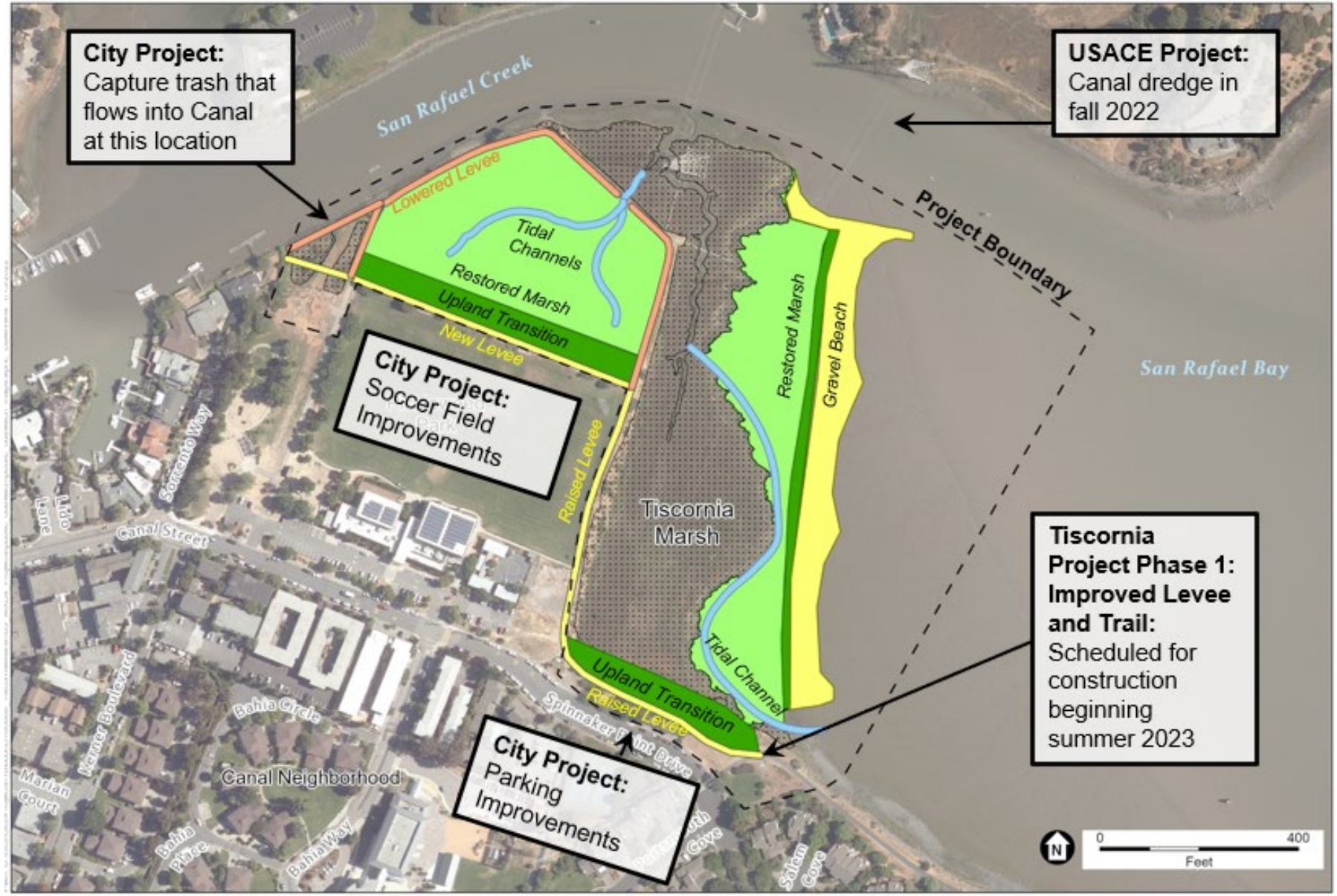


October 18, 2022

ESA

Tiscornia Marsh Project

Concurrent Projects



Coarse Beach and Recreated Marsh